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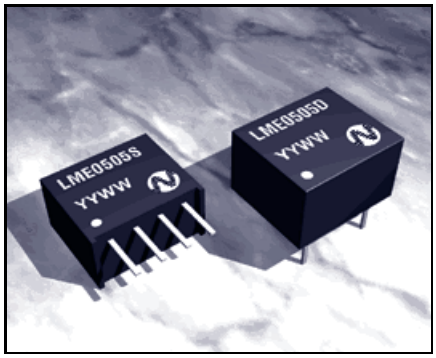
C&D TECHNOLOGIES
Power Solutions

LME SERIES

Isolated 250mW Single Output DC-DC Converters



FEATURES

- High Efficiency for Low Power Applications
- Pin Compatible with NME & NML
- 1kVDC Isolation
- SIP & DIP Package Styles
- Single Output Rail
- Power Density 0.36W/cm³
- 3.3V, 5V and 12V Input
- 3.3V, 5V, 9V, 12V and 15V Output
- Footprint from 0.69cm²
- UL 94V-0 Package Material
- No Heatsink Required
- Internal SMD Construction
- Toroidal Magnetics
- Fully Encapsulated
- No External Components Required
- MTTF up to 3.2 Million Hours
- PCB Mounting
- Custom Solutions Available

DESCRIPTION

The LME series of DC-DC converters are optimised for low-power operation. Due to the low quiescent current they are able to offer efficiencies up to 75%. The use of advanced magnetics ensures a minimal quiescent current of around 2.5mA which ensures that efficiency is maximised in low power applications. They are ideally suited to generating a negative supply where only a positive rail exists.

SELECTION GUIDE

	Nominal Input Voltage	Output Voltage	Output Current	Efficiency	Isolation Capacitance	MTTF[1]	Package Style
Order Code	(V)	(V)	(mA)	(%)	(pF)	kHrs	
LME0305D	3.3	5	50	70	25	2767	DIP
LME0305S	3.3	5	50	70	25	2767	SIP
LME0309D	3.3	9	28	75	30	1250	DIP
LME0309S	3.3	9	28	75	30	1250	SIP
LME0312D	3.3	12	21	75	38	655	DIP
LME0312S	3.3	12	21	75	38	655	SIP
LME0315D	3.3	15	16	75	38	367	DIP
LME0315S	3.3	15	16	75	38	367	SIP
LME0503D	5	3.3	76	70	25	2637	DIP
LME0503S	5	3.3	76	70	25	2637	SIP
LME0505D	5	5	50	70	29	2279	DIP
LME0505S	5	5	50	70	29	2279	SIP
LME0509D	5	9	28	75	37	1139	DIP
LME0509S	5	9	28	75	37	1139	SIP
LME0512D	5	12	21	75	41	624	DIP
LME0512S	5	12	21	75	41	624	SIP
LME0515D	5	15	16	75	40	357	DIP
LME0515S	5	15	16	75	40	357	SIP
LME1205D	12	5	50	70	38	536	DIP
LME1205S	12	5	50	70	38	536	SIP
LME1209D	12	9	28	75	40	434	DIP
LME1209S	12	9	28	75	40	434	SIP
LME1212D	12	12	21	75	43	330	DIP
LME1212S	12	12	21	75	43	330	SIP
LME1215D	12	15	16	75	45	237	DIP
LME1215S	12	15	16	75	45	237	SIP

When operated **with** additional external load capacitance the rise time of the input voltage will determine the maximum external capacitance value for guaranteed start up. The slower the rise time of the input voltage the greater the maximum value of the additional external capacitance for reliable start up.

INPUT CHARACTERISTICS

Parameter	Conditions	MIN	TYP	MAX	Units
Voltage Range	Continuous operation, 3.3V input types	2.97	3.3	3.63	V
	Continuous operation, 5V input types	4.5	5	5.5	
	Continuous operation, 12V input types	10.8	12	13.2	

OUTPUT CHARACTERISTICS

Parameter	Conditions	MIN	TYP	MAX	Units
Rated Power[2]	T_A= 0°C to 70°C			0.25	W
Voltage Set Point Accuracy	See tolerance envelope				
Line Regulation	High V_{IN} to low V_{IN}			1.2	%/%
Load Regulation	10% load to rated load, 3.3V & 5V output types			15	%
	10% load to rated load, all other output types			10	
Ripple & Noise	BW=DC to 20MHz, LME03 types			75	mV p-p
	BW=DC to 20MHz, all other output types			100	

ABSOLUTE MAXIMUM RATINGS

Short-circuit duration[3]	1 second
Lead temperature 1.5mm from case for 10 seconds	300°C
Input voltage V_{IN}, LME03 types	5V
Input voltage V_{IN}, LME05 types	7V
Input voltage V_{IN}, LME12 types	15V

1 Calculated using MIL-HDBK-217F with nominal input voltage at full load.
2 See derating curve
3 Supply voltage must be discontinued at the end of the short circuit duration.
All specifications typical at T_A=25°C, nominal input voltage and rated output current unless otherwise specified.

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ISOLATION CHARACTERISTICS

Parameter	Conditions	MIN	TYP	MAX	Units
Isolation Test Voltage	Flash tested for 1 second	1000			VDC
Resistance	Viso=500VDC	1			GΩ

GENERAL CHARACTERISTICS

Parameter	Conditions	MIN	TYP	MAX	Units
Switching Frequency	All input types		100		kHz

TEMPERATURE CHARACTERISTICS

Parameter	Conditions	MIN	TYP	MAX	Units
Specification	All output types	0		70	°C
Storage		–55		150	°C
Cooling	Free air convection				

PIN CONNECTIONS

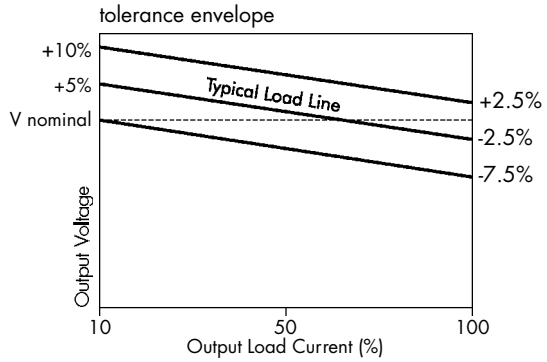
8 Pin DIP

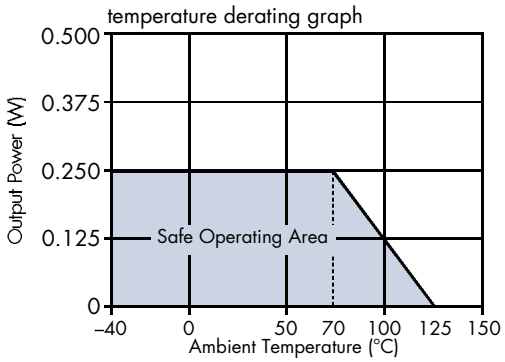
PIN	
1	GND
4	V_{IN}
5	+V
7	0V

4 Pin SIP

PIN	
1	GND
2	V_{IN}
3	0V
4	+V

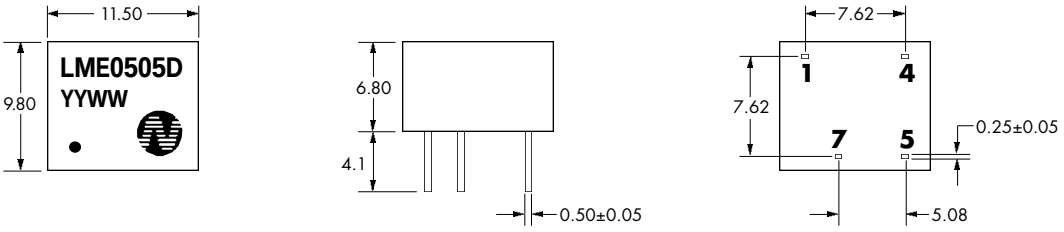
PERFORMANCE CHARACTERISTICS



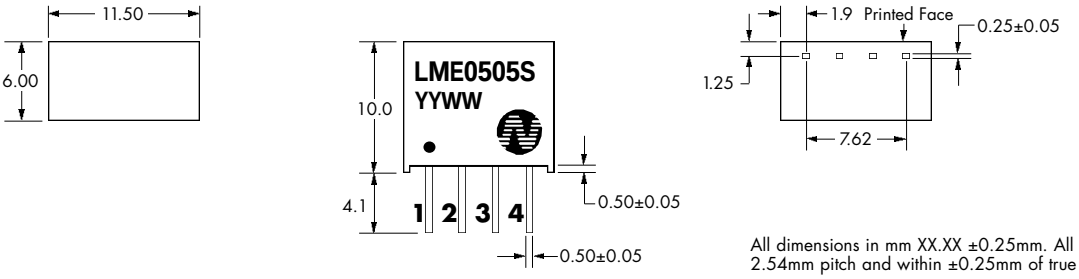


MECHANICAL DIMENSIONS

8 Pin DIP



4 Pin SIP



All dimensions in mm XX.XX ±0.25mm. All pins on a 2.54mm pitch and within ±0.25mm of true position.

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